

We claim:

- 5 *sub 01*
1. A method of modifying a polymeric substrate comprising exposing the polymeric substrate to a flame where the flame is supported by an oxidizer and fuel mixture that includes at least one sulfur-containing compound that functions as a fuel substitute.
  2. The method of claim 1 wherein the mixture of oxidizer and fuel is fuel-lean.
  3. The method of claim 1 wherein the mixture of oxidizer and fuel is fuel-rich.
  4. The method of claim 1 wherein the sulfur-containing compound comprises hydrogen sulfide.
  5. A polymeric substrate having on at least one surface an adhesion-promoting treatment provided by the method of claim 1.
  6. A polymeric substrate treated on at least one surface by the method of claim 1 and having a metal layer adhered to the treated surface.
  7. A polymeric substrate having a surface *flame* treatment comprising a surface that comprises at least one oxidized sulfur-containing chemical group and at least one nitrogen-containing chemical group from the group consisting of nitroso and nitrosoamine.
  8. The polymeric substrate of claim 7 wherein the oxidized sulfur-containing chemical group is a sulfate, a sulfone, a sulfonate, or a sulfonic acid.
  9. A polymeric substrate having a *flame* treated surface comprising a surface that comprises at least one oxidized sulfur-containing chemical group and at least one unoxidized sulfur-containing chemical group.

10. The polymeric substrate of claim 9 wherein the oxidized sulfur-containing chemical group comprises a sulfate, a sulfone, a sulfonate, or a sulfonic acid.

11. The polymeric substrate of claim 9 wherein the unoxidized sulfur-  
5 containing chemical group comprises a sulfide or a thiol.

12. A polymeric substrate having an adhesion-promoting <sup>flame</sup>treatment comprising oxidized and unoxidized sulfur-containing groups on at least one surface, and a metal layer adhered to that surface.

